



SDMS DocID **51609**

005

**FINAL**

**RECORD OF DECISION**

**SOILS AND GROUND WATER OPERABLE UNITS  
SITE 10 - CAMP FOGARTY DISPOSAL AREA  
AND  
GROUND WATER OPERABLE UNIT  
SITE 08 - DPDO FILM PROCESSING DISPOSAL AREA**

**FORMER NAVAL CONSTRUCTION BATTALION CENTER  
DAVISVILLE, RHODE ISLAND**

**FINAL**

**RECORD OF DECISION**

**SOILS AND GROUND WATER OPERABLE UNITS  
SITE 10 - CAMP FOGARTY DISPOSAL AREA  
AND  
GROUND WATER OPERABLE UNIT  
SITE 08 - DPDO FILM PROCESSING DISPOSAL AREA**

**FORMER NAVAL CONSTRUCTION BATTALION CENTER  
DAVISVILLE, RHODE ISLAND**

**RECORD OF DECISION****SOILS AND GROUND WATER OPERABLE UNITS - SITE 10  
GROUND WATER OPERABLE UNIT - SITE 08****Former Naval Construction Battalion Center  
Davisville, Rhode Island****TABLE OF CONTENTS**

<b><u>Contents</u></b>	<b><u>Page Number</u></b>
<b>I. THE DECLARATION</b>	<b>iv</b>
A. SITE NAME AND LOCATION	iv
B. STATEMENT OF BASIS AND PURPOSE	iv
C. RATIONALE FOR NO FURTHER ACTION	iv
D. DECLARATION STATEMENT	iv
<b>II. DECISION SUMMARY</b>	<b>1</b>
A. SITE NAME, LOCATION, AND DESCRIPTION	1
B. SITE HISTORY AND ENFORCEMENT ACTIVITIES	2
1. Land Use And Response History	2
2. Enforcement History	3
C. HIGHLIGHTS OF COMMUNITY PARTICIPATION	4
D. SCOPE AND ROLE OF RESPONSE ACTION	4
E. SITE CHARACTERISTICS	5
F. SUMMARY OF SITE RISKS	8
G. DESCRIPTION OF THE "NO FURTHER ACTION" ALTERNATIVE	13
H. DOCUMENTATION OF NO SIGNIFICANT CHANGES	13
I. STATE ROLE	13
<b>III. RESPONSIVENESS SUMMARY</b>	<b>13</b>
<b>LIST OF ACRONYMS AND ABBREVIATIONS</b>	<b>14</b>

**Appendices**

APPENDIX A - RISK ASSESSMENT SUMMARY

APPENDIX B - RIDEM LETTER OF CONCURRENCE

APPENDIX C - ADMINISTRATIVE RECORD INDEX AND GUIDANCE DOCUMENTS

(under separate cover)

APPENDIX D - TRANSCRIPT OF PUBLIC HEARING

**LIST OF FIGURES**

<u>Figure No.</u>	<u>Title</u>
1	NCBC Davisville Site Locus Map
2	Site 10 - Camp Fogarty Disposal Area
3	Site 10 - Phase I Sampling Locations
4	Site 10 - Phase II Sampling Locations
5	Site 08 - DPDO Film Processing Disposal Area
6	Site 08 - Phase I Sampling Locations
7	Site 08 - Phase II Sampling Locations

## **DECLARATION FOR THE RECORD OF DECISION**

### **SOILS AND GROUND WATER OPERABLE UNITS - SITE 10 GROUND WATER OPERABLE UNIT - SITE 08**

Former Naval Construction Battalion Center  
Davisville, Rhode Island

#### **I. THE DECLARATION**

##### **A. SITE NAME AND LOCATION**

Site 10 - Camp Fogarty Disposal Area  
Site 08 - DPDO Film Processing Disposal Area  
Former Naval Construction Battalion Center (NCBC)  
Davisville, Rhode Island

##### **B. STATEMENT OF BASIS AND PURPOSE**

This decision document presents the No Further Action decision for Site 10 - Camp Fogarty Disposal Area and the ground water at Site 08 - DPDO Film Processing Disposal Area, at the former NCBC Davisville, which was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and to the extent possible the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based upon the contents of the administrative record file for Site 10. The administrative record is available at the former NCBC Administrative Building (Building 404), located on Davisville Road in North Kingstown, Rhode Island.

Both the United States Environmental Protection Agency (EPA) and the State of Rhode Island Department of Environmental Management (RIDEM) concur with the No Further Action decision.

##### **C. RATIONALE FOR NO FURTHER ACTION**

For Site 10 and the ground water at Site 08, the selected remedy is No Further Action. The Navy, as lead agency, has recommended this decision with concurrence from EPA and RIDEM.

##### **D. DECLARATION STATEMENT**

The Department of the Navy has determined that no remedial actions are necessary with respect to Site 10 and the ground water at Site 08 to ensure protection of human health and the environment. Pursuant to Section 121 of CERCLA and Section 300.430(f)(4)(ii) of the NCP, these sites are not limited with respect to future use or access and, therefore, a five year review of the selected remedial action is not required.

The foregoing represents the selection of a remedial action by the Department of the Navy and the U.S. Environmental Protection Agency, Region I, with concurrence of the Rhode Island Department of Environmental Management. The lead agency concurs and recommends for immediate implementation.

By:   
Philip S. Otis

Date: 6/17/98

Title: Philip S. Otis  
BRAC Environmental Coordinator  
Northern Division - Naval Facilities Engineering Command  
Lester, Pennsylvania

The foregoing represents the selection of a remedial action by the Department of the Navy and the U.S. Environmental Protection Agency, Region I, with concurrence of the Rhode Island Department of Environmental Management. The EPA concurs and recommends for immediate implementation.

By: 

Date: 6/30/98

Patricia L. Meaney, Director  
Office of Site Remediation and Restoration

The Responsiveness Summary is divided into the following sections:

Overview - This section briefly describes the no further action alternative recommended within the Proposed Plan, and any impacts on the Proposed Plan due to public comment.

Background on Community Involvement - This section provides a summary of community interest in the proposed remedy and identifies key public issues. It also describes community relations activities conducted with respect to the area of concern.

Summary of Major Questions and Comments - This section provides a summary of the major written comments received during the public comment period.

## **OVERVIEW**

In the Proposed Plan issued for public comment in April 1998, the Navy evaluated the existing data and determined that no further action at Site 10 and Site 08 ground water was appropriate. The preferred alternative was selected in coordination with the U.S. Environmental Protection Agency (EPA) and the Rhode Island Department of Environmental Management (RIDEM). No verbal comments from the public were received on the preferred no further action alternative. Only one written comment, an endorsement of the no further action proposal, was received by the Rhode Island Economic Development Corporation (RIEDC).

## **BACKGROUND ON COMMUNITY INVOLVEMENT**

Throughout the remedial investigation activities, the Navy, RIDEM, and EPA have been directly involved through project review and comments. Periodic meetings have been held to maintain open lines of communication and to keep all parties abreast of current activities.

The Proposed Plan for Sites 08 and 10 was mailed out to community members on the general mailing list on 14 April 1998. Notices of the availability of the Proposed Plan appeared in the North Kingstown Standard-Times and the Providence Journal Bulletin on 23 April 1998. The notices summarized the no further action proposed alternative. The announcement also identified the location of the administrative record and information repository, the date and time of the public informational meeting and the public hearing, the length of the public comment period, and the address to which written comments could be sent.

## **SUMMARY OF MAJOR QUESTIONS AND COMMENTS**

No verbal comments were received on the proposed no further action alternative. One written letter on the Proposed Plan was received from the RIEDC during the public comment period. Presented below the comment received during the comment period and the Navy's response to that comment.

of 13,200 ug/L in this well exceeded the screening criterion (background) of 5,315 ug/L. However, it should be noted that the background screening value for aluminum was based on the 95th UCLM of all Base background wells, therefore a concentration from an individual background well can exceed the background screening level. None of the onsite or downgradient wells at Site 08 contained aluminum in excess of the screening criterion. The source of the aluminum in the background well is unknown, but is assumed to be natural since aluminum is a typical constituent of most soils.

The fact that none of the constituents screened for ecological risk in ground water exceeded screening criteria in Site 08 wells permits a determination of no ecological risk in the Sandhill Brook Watershed from Site 08 ground water. These findings support the No Further Action decision.

#### **G. DESCRIPTION OF THE "NO FURTHER ACTION" ALTERNATIVE**

The preferred alternative for Sites 08 and 10 is No Further Action. This alternative was selected based on the results of the risk assessments, along with the results of the Basewide Inorganics Ground Water Study, it has been determined that the areas are protective of human health and the environment. Sites 08 and 10 are within the NCP "target level" acceptable risk range of  $10^{-6}$  to  $10^{-4}$ .

#### **H. DOCUMENTATION OF SIGNIFICANT CHANGES**

The Navy presented a Proposed Plan on 14 May 1998 for Site 10 and the ground water at Site 08. The plan proposed No Further Action with respect to soil and ground water at Site 10 and ground water at Site 08. Since the No Further Action decision presented herein is identical to that presented in the Proposed Plan, no significant changes need to be addressed.

#### **I. STATE ROLE**

The RIDEM has reviewed the No Further Action Proposed Plan and has indicated its support for the selected remedy. The State has also reviewed the RI/FS, HHRA, and ERA to determine if the selected remedy is in compliance with applicable or relevant and appropriate State environmental laws and regulations. As a party to the FFA, Rhode Island concurs with the selected remedy for Sites 08 and 10. A copy of the declaration of the letter of concurrence is attached as Appendix B.

### **III. RESPONSIVENESS SUMMARY**

The purpose of this Responsiveness Summary is to review public response to the Proposed Plan for no further action with respect to Sites 08 and 10 at the former Naval Construction Battalion Center (NCBC) in Davisville, Rhode Island. Site 08 is the Defense Property Disposal Office (DPDO) Film Processing Disposal Area and Site 10 is the Camp Fogarty Disposal Area at NCBC Davisville. This Responsiveness Summary documents the Navy's consideration of public comments during the decision-making process and provides answers to any major comments raised during the public comment period.

*Freshwater/Terrestrial Ecological Risk Assessment (EA, 1996), and in the Final Technical Memoranda Ecological Risk-Based Surface Soil Remediation Evaluation (EA, 1997).*

Site 08: Human health risks due to the ground water at Site 08 are presented in the *Final Human Health Risk Assessment (HHRA): Site 08 Ground Water, Naval Construction Battalion Center, Davisville, Rhode Island*, prepared by EA in April 1998.

Risk-based screening performed for Site 08 ground water resulted in no constituents of concern (COCs) exceeding their respective risk-based screening concentrations. RBCs are chemical concentrations that correspond to fixed levels of risk (i.e., either a one-in-one-million cancer risk or a noncarcinogenic hazard quotient of one, whichever occurs at a lower concentration) in tap water. They are derived to be protective of human consumers of tap water.

A close examination of analysis showed that no COCs are identified in Site 08 ground water. It should be noted that the maximum detected concentrations of arsenic, beryllium, and manganese at Site 08 exceeds the risk-based screening criteria. However, when background data is available it is prudent that a statistical comparison between site concentrations and background concentrations be performed to identify the non-site related chemicals that are found at or near the site (EPA 1989a, pg 5-18, Section 5.7, first paragraph). This exercise is part of data evaluation in a human health risk assessment. The statistical evaluation showed that none of these three chemicals are associated with potential onsite contamination, thus excluded from further analyses as chemicals of potential concern at Site 8 ground water. The analysis in the HHRA and the rationale presented herein eliminates the need to perform a quantitative evaluation of exposures and risks to potential human receptors at Site 08.

The HHRA concluded that there were no COCs in Site 08 groundwater at levels of concern from public health protection standpoint. In the absence of COCs in Site 08 ground water, a quantitative evaluation of exposures and risks to potential human receptors at Site 08 was not warranted.

Ecological risks due to the ground water at Site 08 are presented in the *Technical Memorandum - Ecological Risks from Ground Water at NCBC IR Site 08* prepared by EA dated 06 April 1998. To address ecological risk from ground water, the Navy developed a stepwise protocol that first involved screening chemical constituents in ground water against protective criteria such as Ambient Water Quality Criteria (AWQC) or background. If any constituent exceeds screening criteria, the hydrogeology of the site is investigated to determine if ground-water constituents from historical releases at a site could have reached surface water and sediment in the watershed in which the site is located, prior to surface water/sediment sampling in the mid-1990s. If migration of ground-water constituents is judged to be likely, then surface water and sediment concentrations are examined to determine whether they may have resulted from ground water.

At Site 08, implementation of the full stepwise protocol is rendered unnecessary because none of the chemical constituents in ground water being examined for risk exceeded screening criteria in wells on and downgradient of Site 08. Data evaluated for ecological risk include low-flow sampling data from the Phase II Remedial Investigation (RI) (TRC 1994) and background (Stone & Webster 1996). The ground water data indicate that a single constituent, aluminum, exceeded the screening criterion in the Sandhill Brook Watershed background well (MW-WD-2), approximately 1,700 ft to the southwest and upgradient of Site 08. The aluminum concentration

The Navy also evaluated potential ecological risks associated with the Hunt River watershed by performing an ecological risk assessment and preparing a Technical Memorandum to document and evaluate the findings of the ERA. The ERA was performed by identifying organisms (receptors) representative of those potentially present at the site, determining the degree to which they are potentially exposed to site-related chemicals, and quantifying the potential effects of this exposure. The ecological receptors identified for risk assessment were the robin, hawk, heron, shrew, mink, and tern. Ecological risks are quantified by comparing chemical concentrations onsite (represented by modeled chemical dose) with the concentration of each chemical not likely to be associated with harmful effects for a particular receptor (toxicity reference value or TRV). The result of this comparison is a HQ, which is calculated as the ratio of the chemical dose to the TRV:

$$\text{HQ} = \frac{\text{Chemical Dose}}{\text{TRV}}$$

HQ values greater than 1.0 reflect a dietary dose that exceeds the safe dose and carries a presumption of risk. HQ values less than 1.0 reflect minimal risk. In general, the greater the HQ the greater the concern for potential risks.

The Technical Memorandum was prepared using a stepwise protocol, which included selecting a risk threshold, identifying and validating the appropriate risk drivers, selecting preliminary remediation goals (PRGs), and determining the necessity of further action. As presented in the Final Technical Memorandum, a risk threshold of HQ=10 was chosen based on modeled results for terrestrial receptors whose food base derives ultimately from soil, or the hawk, robin, and shrew. In the Hunt River watershed, HQ analysis revealed only one HQ for terrestrial receptors in excess of 10. As presented in the Final Technical Memorandum, an HQ of 19.87 was calculated for the antimony/shrew pair of constituent/receptor. As stated in the Technical Memorandum, the fact that antimony was detected in only a few samples, and the single sample driving risk was based on a questionable concentration, support a decision of no further action for surface soil due to the presence of antimony at Site 10.

The ERA concluded that Site 10 does not pose an ecological risk to aquatic or terrestrial populations in the Hunt River watershed for the following reasons:

- ▶ organic and inorganic constituents in the surface water and sediments of Hunt River were generally within natural levels,
- ▶ modeled doses of constituents to birds and mammals near Site 10 resulted in relatively low HQs and mammal risk,
- ▶ the benthic and wildlife observations in Hunt River/Frenchtown Brook Watershed indicate a diverse ecosystem, and
- ▶ the remediation of surface soil is not warranted, based on evaluation of soil-based site-specific HQs.

A summary of the ecological risk can be found in the *Draft Final Facility-Wide*

The two exposure pathways for child residents consist of incidental ingestion of and dermal contact with surface soil, assuming future residential use of the site. Estimated total cancer risks for resident children ranged from  $1 \times 10^{-6}$  and  $7 \times 10^{-6}$ . These risks are not much greater than  $1 \times 10^{-6}$ , and are within EPA's acceptable risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ . The greatest portion of risk is attributed to arsenic, beryllium, benzo(a)pyrene and dibenzo(a,h)anthracene, however no unacceptable risks were found.

For each pathway evaluated, an average exposure and a RME estimate was generated corresponding to exposure to the average and the maximum concentration detected in that particular medium. See Table A-2 for summary of estimated cancer risks.

Excess lifetime cancer risks were determined for each exposure pathway by multiplying the exposure level with the chemical specific cancer slope factor (SF). Cancer slope factors have been developed by EPA from epidemiological or animal studies to reflect a conservative "upper bound" of the risk posed by potentially carcinogenic compounds. That is, the true risk is unlikely to be greater than the risk predicted. The resulting risk estimates are expressed in scientific notation as a probability (e.g.  $1 \times 10^{-6}$  for 1/1,000,000) and indicate (using this example), that an average individual is not likely to have greater than a one in a million chance of developing cancer over 70 years as a result of site-related exposure as defined to the compound at the stated concentration. Current EPA practice considers carcinogenic risks to be additive when assessing exposure to a mixture of hazardous substances.

A hazard quotient (HQ) is calculated by dividing the exposure level (i.e. average daily intake) by the reference dose (RfD) or other suitable benchmark for non-carcinogenic health effects for an individual compound. Reference doses have been developed by EPA to protect sensitive individuals over the course of a lifetime and they reflect a daily exposure level that is likely to be without an appreciable risk of an adverse health effect. RfDs are derived from epidemiological or animal studies and incorporate uncertainty factors to help ensure that adverse health effects will not occur. The HQ is often expressed as a single value (e.g. 0.3) indicating the ratio of the stated exposure as defined to the reference dose value (in this example, the exposure as characterized is approximately one third of an acceptable exposure level for the given compound). The HQ is only considered additive for compounds that have the same or similar toxic endpoint and the sum is referred to as the Hazard Index (HI). (For example: the HQ for a compound known to produce liver damage should not be added to a second whose toxic endpoint is kidney damage).

As outlined in the NCP, acceptable risks at a Superfund site are those associated with the site which fall within the range of one in a million cancer risk and one in ten thousand cancer risk ( $10^{-6}$  to  $10^{-4}$ ). All of the estimated maximum cancer risks associated with exposure to constituents at Site 10 fall well within the NCP acceptable risk range. In addition, non-cancer adverse health effects as represented by an exposure pathway HI value greater than unity (i.e. greater than 1) indicates a concern for potential non-cancer health effects. HI values greater than 1.0 were not identified at Site 10.

Table A-2 depicts the cancer risks and non-cancer hazard indices for the constituents of concern in soil evaluated to reflect present land use and potential future construction and future commercial/industrial land use corresponding to the average and the RME exposure scenarios.

### *Future Construction Workers*

It was assumed in the HHRA that construction will be accomplished in one calendar year. Excavation is expected to take 90 calendar days. Thus, for the average case in this risk assessment, the exposure period of interest was assumed to be three months (13 weeks). The maximum case, allowing for delays, was conservatively assumed to take four months (17 weeks). Since workers are likely to be onsite for 5 days/week, 8 hours/day, the following values were used for exposure frequency: average case exposure duration - 65 days/year and RME case duration - 85 days/year.

The three exposure pathways for future adult construction workers consist of workers exposed to soil via dermal contact, incidental ingestion and inhalation assuming construction of commercial buildings. The estimated cancer risks for future construction workers were estimated to be below  $1 \times 10^{-6}$ .

### *Future Commercial/Industrial Worker*

It was assumed in the HHRA that workers are employed as many as 25 years and as little as 12 years (one-half the maximum exposure duration). Because that is a "light-industry" occupational scenario, clothing is likely to consist of coveralls, boots, and gloves. However, to produce a conservative estimate of exposure, workers are assumed to contact soil with their hands and feet. Workers are assumed to be onsite eight hours per day and to engage in levels of activity typical of indoor work environments. The exposure frequency for contact with site soil is assumed to be 150 days per year.

The two exposure pathways for adult employees consists of dermal contact with and incidental ingestion of surface soil under future commercial/industrial use of the site. Estimated total cancer risks for future industrial/commercial workers ranged from  $8 \times 10^{-7}$  to  $3 \times 10^{-6}$ , which is not much greater than  $1 \times 10^{-6}$ , and is within the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) acceptable risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ . The greatest portion of risk is attributed to arsenic, beryllium, benzo(a)pyrene and dibenzo(a,h)anthracene. However, no unacceptable risk was found. It is also important to note that many inorganics can occur naturally in the environment.

### *Future Resident (Adults and Children)*

The Comprehensive Base Reuse Plan for NCBC Davisville does not include residential development. In addition, Site 10 has been transferred to the Army and remains an active firing range, unaffected by the closure of NCBC Davisville. Nevertheless, potential exposure to soils by onsite residents was evaluated as a conservatively prudent measure. Exposure parameters used for this pathway were default assumptions for residential scenarios.

The two exposure pathways for adult residents consist of incidental ingestion of and dermal contact with surface soil, assuming future residential use of the site. The estimated cancer risks for adult residents were estimated to be in the range of  $4 \times 10^{-7}$  to  $4 \times 10^{-6}$ , within the NCP acceptable risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ .

ground water at Site 08. No new field activities were performed at Site 08 for the Ground Water Evaluation. Site history, results of previous studies, ground water monitoring results, and recommendations for future actions are presented in the Ground Water Evaluation. The inorganic analysis results of ground water samples were compared to water quality standards and the background inorganic values as presented in the *Final Basewide Ground Water Inorganics Study Report - NCBC Davisville, Rhode Island*, prepared by Stone & Webster in September 1996.

## F. SUMMARY OF SITE RISKS

Site 10: A Final Technical Memoranda HHRA (EA Engineering, Science, and Technology (EA) November 1996), which addressed Site 10, was prepared based on results obtained from the Phase I and Phase II RI. In addition, a Draft Final Facility-Wide Freshwater/Terrestrial ERA was prepared by EA in February 1996. Subsequently, a Revised Final Technical Memorandum for soils at Site 10 was prepared by EA in January 1998 that addresses various ecological risk issues, and includes specific evaluations of risk from surface soil. These reports are available for review at the Information Repository at the North Kingstown Free Library. The risk assessments were performed to estimate the probability and magnitude of potential adverse human health and environmental effects from exposure to constituents associated with Site 10. The public health risk assessment followed a four step process: 1) constituent identification, which identified those hazardous substances which, given the specifics of the site were of significant concern; 2) exposure assessment, which identified actual or potential exposure pathways, characterized the potentially exposed populations, and determined the extent of possible exposure; 3) toxicity assessment, which considered the types and magnitude of adverse health effects associated with exposure to hazardous substances; and 4) risk characterization, which integrated the three previous steps to summarize the potential and actual risks posed by hazardous substances at the site, including carcinogenic and non-carcinogenic risks. The results of the HHRA for the Site 10 are discussed below, followed by the conclusions of the ERA.

Ten constituents of concern identified for soil at Site 10 were selected for evaluation in the risk assessment. These are listed in Table 1 found in Appendix A of this ROD. These constituents represent a subset of the constituents identified at the Site during the RI. The constituents of concern were selected to represent potential site related hazards based on toxicity, concentration, frequency of detection, and mobility and persistence in the environment. A summary of the health effects of each of the constituents of concern can be found in the HHRA, Section 2.0 (EA, 1996).

Potential human health risks associated with exposure to the constituents of concern were estimated quantitatively or qualitatively through the development of several hypothetical exposure pathways. These pathways were developed to reflect the potential for exposure to hazardous substances based on the present uses, potential future uses, and location of Site 10. Both the Phase I RI and the Phase II RI data were used to characterize the human health risks. Exposure dose was calculated using an upper confidence limit, the 95th percentile of the mean assuming a lognormal distribution (95th UCLM), as well as on the maximum detected chemical concentration (Reasonable Maximum Exposure or RME). Note that this method was used in accordance with the applicable guidance in place when the HHRA was performed. Potential human health exposure scenarios which were evaluated are presented below.

The findings of the Phase I RI field activities for Site 10 are discussed in detail in the Phase I RI Technical Report, dated May 1991. The Phase II RI activities conducted at Site 10 are presented in the Phase II RI Technical Report, dated July 1994. A summary of the nature and extent of constituents in soil and ground water based on the RI results are presented by chemical class below. Where appropriate, CS results are also referenced.

Site 08: The site is characterized by a flat grass-covered area with a 10-ft wide paved road passing through the center of it. On the West Davisville NCBC property, ground water appears to flow southwest to northeast toward Sandhill Brook. Site 08 surface water runoff is toward the east and Sandhill Brook. There is possibly a ground water divide oriented in a predominantly north-south direction near Building 317. At this western edge of the area ground water appears to flow westward. This may be a temporary or seasonal condition. Additional rounds of water level measurements would be required to confirm the possible ground water divide. Ground water from the Devil's Foot Road Site also flows toward Sandhill Brook.

West Davisville lies within the Potowomut River Basin. Ground water at Site 08 is classified as GAA-NA by RIDEM. Ground water classified as GAA includes those ground water resources which RIDEM has designated to be suitable for public drinking water without treatment. Areas classified as non-attainment (NA) are those which are known or presumed to be out of compliance with the standards of the assigned classification. The goal for non-attainment areas is restoration to a quality consistent with the classification.

Site 08 was identified in the IAS report as a possible site of hazardous waste disposal. However, the IAS concluded that the risk posed by Site 08 to human health and the environment was minimal and that no further investigation was necessary. At the request of the RIDEM, the site was included in the CS, however no ground water monitoring was performed during this investigation. No ground water monitoring was performed during the Phase I RI.

The purpose of the ground water investigation performed during Phase II RI activities at Site 08 was to assess the shallow ground water quality, including the presence, nature, and extent of constituents in ground water, and to provide information regarding the site hydrogeology. The investigation also provided a basis for the evaluation of contaminant fate and transport mechanisms and data for use in quantitatively evaluating human health risks and ecological risks in ground water.

Three shallow monitoring wells and one deep monitoring well were installed, and ground water was sampled from each well. A shallow well is defined as a well which has the top of the screen above or in close proximity to the water table. A deep well is defined as a well which has the bottom of screen near bedrock. Well sampling was performed using low-flow sampling techniques. Ground water samples were analyzed in the field for the water quality parameters of pH, specific conductance, temperature, and turbidity. Laboratory analysis of the ground water samples included TCL volatile organic compounds (VOC), TCL base, neutral, and acid extractable compounds (BNA), TCL pesticides, PCB, TAL metals, and cyanide. In addition, filtered ground water samples were collected for dissolved metals and cyanide analysis.

The comprehensive evaluation of the ground water at NCBC, including Site 08, was performed. Previous ground water sampling results were compiled and used to assess the condition of the

for the evaluation of constituent fate and transport mechanisms and data for use in quantitatively evaluating human health risks and ecological risks.

The Phase II RI field investigation activities were conducted at Site 10 from December 1992 to August 1993. They included a soil gas survey, geophysical survey, surface soil sampling, soil boring sampling, and ground water sampling. The geophysical investigation at Site 10 consisted of a seismic refraction survey and an electromagnetic conductivity survey.

The soil gas survey focused on the three large depressions and included the collection of 46 soil gas samples. All of the Phase II soil gas samples were subjected to dual analyses on a portable gas chromatograph (GC). One analysis was conducted according to EPA Method 601 (modified) and the other analysis was conducted according to EPA Method 602 (modified).

Nineteen surface soil samples were collected from 12 surface soil sample locations, five test boring locations (0 to 2 feet), and two monitoring well boring locations (0 to 2 feet). Five subsurface soil samples were taken from one monitoring well boring and four test borings. The surface and subsurface soil samples were analyzed for full TCL and TAL parameters, less pesticides/polychlorinated biphenyls (PCB). Two surface soil samples from Site 10 were also collected for Toxicity Characteristic Leaching Procedure (TCLP) analyses.

After the completion of the monitoring well borings, both shallow wells and deep wells were installed at Site 10. In addition, three bedrock cores were collected during the drilling activities. Ground water samples were collected from each of the eight monitoring wells (five shallow wells and three deep wells). Ground water samples were analyzed in the field for the water quality parameters of pH, specific conductance, temperature, and turbidity, and in the laboratory for full TCL and TAL parameters, less pesticides/PCB. In addition, three ground water samples were analyzed for filtered metals, biochemical oxygen demand (BOD), chemical oxygen demand (COD) and total suspended solids (TSS).

Eighteen background surface soil samples were also collected across NCBC Davisville during the Phase II RI to provide a range of background soil quality for NCBC Davisville soils. All 18 samples were analyzed for full TCL and TAL analytes.

The goal of the ground water investigation at Camp Fogarty was to evaluate the inorganic ground water chemistry, compare the findings to previously reported data and historical aquifer water quality data, and provide recommendations regarding the NPL status of Camp Fogarty with respect to ground water. Water levels and interpreted ground water flow directions were determined from measurements in wells installed during previous investigations in 1991 - 1993. Existing monitoring wells, located in and around the three firing ranges and Site 10, were used to collect water samples for inorganic analyses. Low flow sampling techniques were utilized to collect ground water samples with minimal disturbance.

The results of inorganic analyses were compared to State and Federal water quality standards, such as the Maximum Contaminant Levels (MCL), Secondary Maximum Contaminant Levels (SMCL), Rhode Island State Groundwater Quality Standards, and Risk-Based Concentrations (RBC) developed by the EPA Region III. Results of analyses of ground water samples were also compared to results obtained from samples collected from local public drinking water wells.

## E. SITE CHARACTERISTICS

For NCBC Davisville, an IAS was completed in September 1984, detailing the historical hazardous material usage and waste disposal practices at the facility. Included in the various areas identified in this study were Sites 08 and 10. The IAS was followed by the CS, which included environmental sampling and analysis to verify the presence of constituents at the sites. Specific details of site history and the investigations conducted are provided in the following sections.

Site 10: Site 10 is characterized by the presence of three depressions located between the firing range berms and a steeply rising hill. The vicinity of the site is heavily wooded, interspersed with meadow areas. Runoff is expected to be minimal since the site consists of depression areas and the soils are well-drained. No surface water bodies exist within Camp Fogarty.

Shallow ground water flow converges toward the topographically low, north-central portion of the site. The northernmost depression/disposal area has the lowest elevation and appears to dominate shallow ground water flow. In the southern portion of the site, shallow ground water flow is generally toward the north-northeast, and in the northern portion of the site, shallow ground water flow is generally to the south-southwest.

Camp Fogarty lies within the Potowomut River Basin. Ground water at Site 10 is classified as GAA-NA by RIDEM. Ground water classified as GAA includes those ground water resources which RIDEM has designated to be suitable for public drinking water without treatment. The goal for non-attainment areas is restoration to a quality consistent with the classification.

The DAA (TRC, 1994) contains an overview of the site investigation conducted at Site 10. The notable findings of the site investigations are summarized below.

According to the DAA, Site 10 was identified in the IAS as a possible receptor of hazardous wastes. However, the IAS concluded that the risk posed by Site 10 to human health and the environment was minimal and that no further investigation was necessary. At the request of RIDEM, Site 10 was included in the Verification Step of the CS.

The Verification Step field investigations consisted of two phases which included a site walk-over with an organic vapor analyzer (OVA) and surface soil sampling. One composite surface soil sample was collected from each of four discrete sampling locations and scanned for EPA Priority Pollutants. Another surface soil sample was taken during the second phase of sampling and also scanned for EPA Priority Pollutants.

The Phase I RI, conducted from September 1989 to March 1990, included a limited soil gas survey, the collection of six surface soil samples, two soil borings, and the installation and sampling of three ground water monitoring wells. All soil and ground water samples were submitted for full Target Compound List/Target Analyte List (TCL/TAL) analyses.

The purpose of the Phase II RI at Site 10 was to further delineate the horizontal and vertical location of constituents associated with the disposal activities and to verify the Phase I RI conclusion that there is no significant source at the site. The investigations also provided a basis

into by the U.S. Navy, the EPA and RIDEM in March 1992. NCBC Davisville was placed on the EPA's NPL on November 21, 1989. Investigation and cleanup of DOD sites, such as the former NCBC Davisville, are funded through the Defense Environmental Restoration Account (DERA) of the Base Realignment and Closure (BRAC) Account.

### **C. HIGHLIGHTS OF COMMUNITY PARTICIPATION**

The Navy has kept the community and other interested parties apprised of site activities through informational meetings (Technical Review Committee meetings and Restoration Advisory Board meetings which involve community representatives), fact sheets, press releases and public meetings.

In April 1989, the Navy held an informational meeting at the Administrative Building (Building 404), located at the former NCBC Davisville, Rhode Island to describe the plans for the RI and Feasibility Study (FS). In May 1989, the Navy released a community relations plan which outlined a program to address community concerns and keep citizens informed about and involved in activities during remedial investigations.

The administrative record is available for public review at the Administrative Building (Building 404), located at the former NCBC Davisville in North Kingstown, Rhode Island. Copies of documents are also located at the Information Repository at the Reference Desk of the North Kingstown Free Library in North Kingstown, Rhode Island. The Navy published a notice and brief analysis of the Proposed Plan in the Providence Journal Bulletin and Narragansett Standard Times. The Proposed Plan is available to the public at the Information Repository.

On 14 May 1998, the Navy held an informational meeting to discuss the results of the RI and to present the Agency's Proposed Plan in accordance with Section 117(a) of CERCLA, and a public meeting to discuss the Proposed Plan and to accept any oral comments. Also during this meeting, the Navy answered questions from the public. From 23 April 1998 to 22 May 1998, the Navy held a 30 day public comment period to accept public comment on the Proposed Plan and on any other documents previously released to the public. Public comments and the Navy's response to comments are presented in the Responsiveness Summary, included in Section III. A public hearing was also held on 14 May 1998. A transcript of this hearing is included in Appendix D.

### **D. SCOPE AND ROLE OF RESPONSE ACTION**

Based upon the risk assessment and the Remedial Investigations for Sites 08 and 10, which is discussed in further detail in the succeeding sections, no principal threats to human health or the environment have been identified as being associated with the soils or ground water at Site 10 or with the ground water at Site 08, providing the basis for the No Further Action decision.

Cans of rifle- and weapon-cleaning oils and preservatives, as well as miscellaneous municipal-type garbage, were occasionally disposed of in a shallow, sandy excavation just west of the firing ranges at Camp Fogarty. The disposal volume was estimated at 50,000 cubic feet. Waste materials included rusted, empty paint cans, 55-gallon drums, and miscellaneous metal parts. Empty cans that had contained weapons cleaning fluids were previously removed from and disposed of off-site.

In late 1996, a removal action, which involved the removal and off-site disposal of the remaining debris at Site 10, was completed. The removal action was performed in order to comply with Rhode Island State Solid Waste Regulations.

Site 08: The DPDO Film Processing Disposal Area is located adjacent to the DPDO warehouse, Building 314 in West Davisville, as shown on Figure 5. The site is a flat grass-covered area with a 10-ft wide paved road passing through the center of it. The eastern boundary of the site is a 10-ft high fence which delineates the present West Davisville property line (Figure 5). Site 08 surface water runoff is toward the east and Sandhill Brook. The property to the east was formerly used as a disposal area and is currently being investigated by the U.S. Army Corps of Engineers. Historical aerial photographs of the site indicate this general area was used as a storage area for trailers and drums.

For a six-month period during 1973, the DPDO recovered silver from photographic wastes. Waste liquids from this recovery process were reportedly discharged on the pavement outside of Building 314. Waste liquids generated consisted of photographic compounds, such as sodium thiosulfate and hydroquinone, and liquids containing small concentrations of formaldehyde, acetic acid, potassium hydroxide and sulfuric acid. No information on frequency or total quantity of discharge was available from interviews or record searches. However, the amounts were reportedly small. Only a small quantity of waste liquids were reportedly discharged at this site. The waste liquids were reportedly poured on a paved area and allowed to run off during rainfall events, according to the IAS report.

## **2. Enforcement History**

In response to the environmental contamination which has occurred as a result of the use, handling, storage, or disposal of hazardous materials at numerous military installations across the United States, the Department of Defense (DOD) has initiated investigations and cleanup activities under the IR Program. The IR Program parallels the Superfund program and is conducted in several stages, including:

1. Identification of potential hazardous waste sites;
2. Confirmation of the presence of hazardous materials at the sites;
3. Determination of the type and extent of constituents;
4. Evaluation of alternatives for cleanup of the sites;
5. Proposal of a cleanup remedy;
6. Selection of a remedy; and
7. Implementation of the remedy for the cleanup of the sites.

The U.S. Navy is responsible for addressing environmental contamination at the former NCBC Davisville, pursuant to Section 120 of CERCLA and a Federal Facility Agreement (FFA) entered

transferred to the U.S. Army, and remains an active facility which was not impacted by the closure of NCBC Davisville.

West Davisville is a 70-acre parcel of land located west of the Main Center. West Davisville includes four buildings. Site 08, the DPDO Film Processing Disposal Area, is located in West Davisville adjacent to Building 314, the DPDO warehouse.

Camp Fogarty and West Davisville lie within the Potowomut River Basin. Sandhill Brook is located within West Davisville. No surface water bodies exist within Camp Fogarty.

Site 10 is characterized by the presence of three depressions located between the firing range berms and a steeply rising hill. The vicinity of the site is heavily wooded, interspersed with meadow areas. Runoff is expected to be minimal since the site consists of depression areas and the soils are well-drained. Site 08 is characterized by a flat grass-covered area with a 10-ft wide paved road passing through the center of it. Site 08 surface water runoff is toward the east and Sandhill Brook.

## **B. SITE HISTORY AND ENFORCEMENT ACTIVITIES**

### **1. Land Use And Response History**

An Initial Assessment Study (IAS) for NCBC Davisville was completed in September 1984, detailing historical hazardous usage and waste disposal practices at the facility. Included in the various areas identified in the study were Sites 08 and 10. The IAS was followed by the Confirmation Study (CS), which included environmental sampling and analysis to verify the presence of constituents at the sites. Other investigations for Sites 08 and 10 include Remedial Investigations (RI), Human Health Risk Assessments (HHRA), Ecological Risk Assessments (ERA), a Detailed Analysis of Alternatives (DAA) for Site 10, and Ecological Technical Memoranda for the soil at Site 10 and the ground water at Site 08.

A detailed description of the use and response history for each site can be found in the following: *Final DPDO Film Processing Disposal Area Remedial Investigation Report, Volume I* (TRC, May 1994), and the *Volume I Remedial Investigation Report Site 10-Camp Fogarty Disposal Area* (TRC, July 1994).

Site 10: The Camp Fogarty area was originally known as Sun Valley, and contained more than 6,000 acres which were taken by eminent domain. During World War II, it was used for military training of the Naval Construction Force personnel. Following the war, all but 375 acres were transferred back to the original owners. The remaining area was used for Seabee military training until 1974. Since then, Camp Fogarty has been primarily used by the RING. The property was transferred to the Department of the Army in December 1993, and has been assigned to RING. Since the property transfer, RING has added several new firing ranges. Camp Fogarty is currently utilized by several military installations, including the Navy, Army, State and Federal agencies, area police departments, and civilian groups.

Site 10 consists of three depressions which formerly contained construction debris (see Figure 2). The vicinity of the area is heavily wooded, interspersed with meadow areas. Seasonal flooding occurs in the low lying regions of Site 10 during periods of heavy rain.

## **II. DECISION SUMMARY**

### **A. SITE NAME, LOCATION, AND DESCRIPTION**

The former U.S. Naval Construction Battalion Center (NCBC) Davisville is a National Priorities List (NPL) site. There are 12 Installation Restoration (IR) Program Sites and four study areas within NCBC Davisville that have been or are currently under investigation. This Record of Decision (ROD) addresses Site 10 - Camp Fogarty Disposal Area and the ground water at Site 08 - DPDO Film Processing Disposal Area.

The former NCBC Davisville facility is located in the northeast section of North Kingstown, Rhode Island, approximately 18 miles south of the state capital Providence. A portion of NCBC Davisville is adjacent to Narragansett Bay. Adjoining NCBC Davisville's southern boundary is the decommissioned Naval Air Station (NAS) Quonset Point that was transferred by the Navy to the Rhode Island Economic Development Corporation (RIEDC), formerly the Rhode Island Port Authority (RIPA), and others during the period 1974 through 1978.

NCBC Davisville is composed of three areas: the Main Center, West Davisville, and Camp Fogarty, a training facility located approximately 4 miles west of the Main Center. The areas are presented on Figure 1. Land use surrounding NCBC Davisville is predominately residential to the north. West of the Main Center, along Route 1, development consists of shopping malls, retail stores, restaurants, and gas stations.

The history of NCBC Davisville is related to the history of Quonset Point. Quonset Point was the location of the first annual encampment of the Brigade Rhode Island Militia in 1893. During World War I, it was a campground for the mobilization and training of troops and later was the home of the Rhode Island National Guard (RING). In the 1920s and 1930s it was a summer resort.

In 1939, Quonset Point was acquired by the Navy to establish a Naval Air Station (NAS). Construction began in 1940. By 1942, the operations at NAS Quonset Point had expanded into what is now called NCBC Davisville. Land at Davisville adjacent to NAS Quonset Point was designated the Advanced Base Depot. Also in 1942, the Naval Construction Training Center, known as Camp Endicott, was established to train the newly established construction battalions.

While NAS Quonset Point remained a site of naval activity, Davisville was inactive between World War II and the Korean Conflict. In 1974, operations at Davisville were greatly reduced. In 1991, closure of NCBC Davisville was announced, and all operations at Davisville were phased down to lower staffing levels. NCBC was officially closed on April 1, 1994.

Camp Fogarty is a 375-acre parcel of land located about four miles west of the Main Center, in East Greenwich, Rhode Island. Camp Fogarty includes an active firing range (see Figure 2). Site 10, the Camp Fogarty Disposal Area, is located west of the firing range, between the firing range berms and a steeply rising hill. Access to the entire area, including the portion of the area referred to as Site 10, is restricted by fences and facility personnel. This property has been

**RIEDC WRITTEN COMMENTS DATED 21 MAY 1998**

**Comment:** "The Rhode Island Economic Development Corporation (RIEDC) fully endorses the no further action proposed by the referenced document.

As the Local Redevelopment Agency (LRA) for the former CBC facility at Davisville, we recognize and appreciate the efforts of the Navy and the BCT to reach this proposed action. We look forward to the continued efforts of the BCT on the remaining sites at Davisville so that we can move closer to the transfer of deeds for the various parcels of the facility within the present schedules.

Thank you for the opportunity to comment on the reference document."

**Response:** *The Navy appreciates the endorsement by the RIEDC.*

**CONCLUSIONS:**

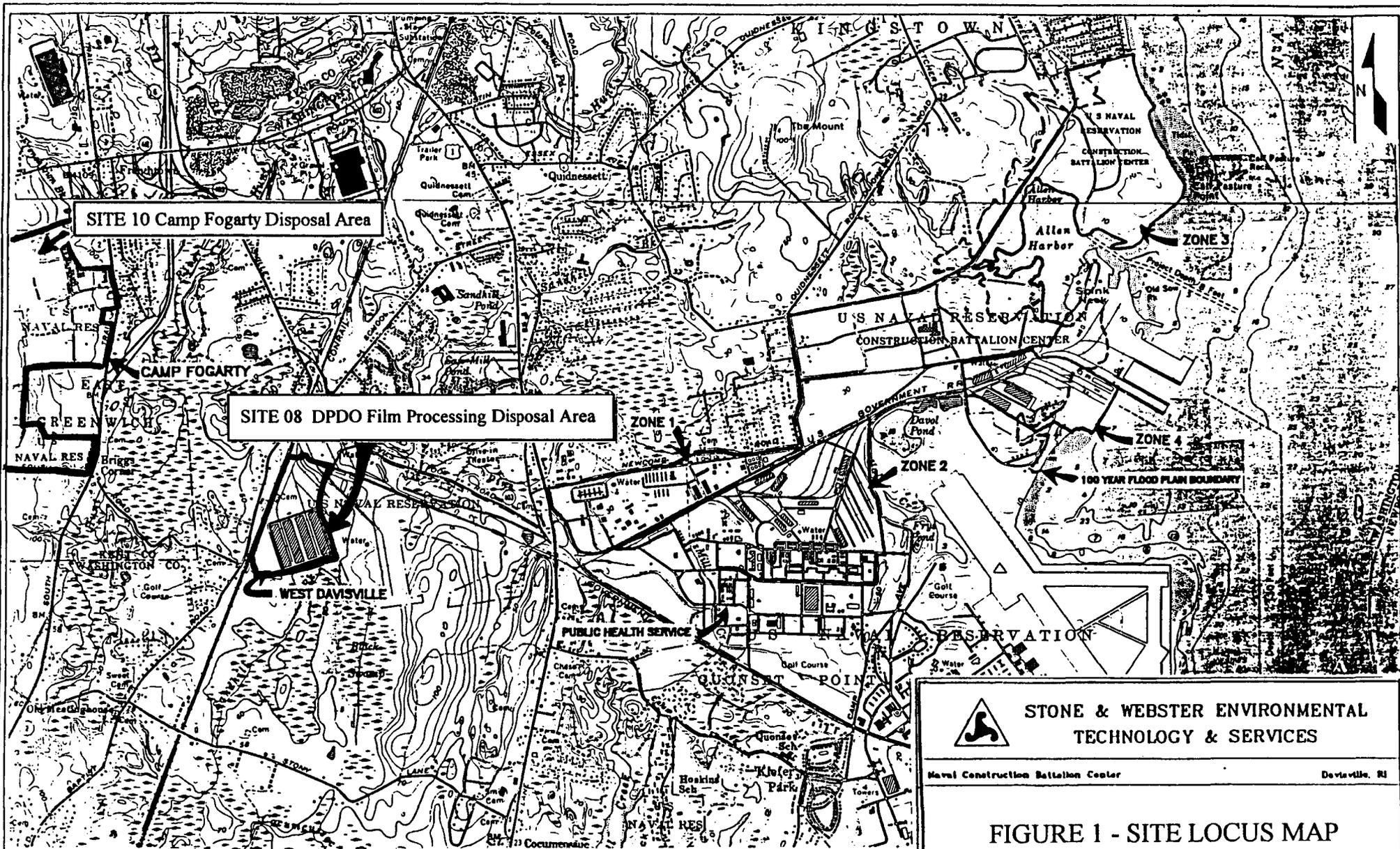
This comment and proposed response will be incorporated into the Draft Final Record of Decision (ROD), expected to be completed in June 1998. No changes will be made to the reference document based on the fact that the only comment received is an endorsement of the proposed no further action decision.

## LIST OF ACRONYMS AND ABBREVIATIONS

BOD	Biological Oxygen Demand
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COD	Chemical Oxygen Demand
CS	Confirmation Study
DAA	Detailed Analysis of Alternatives
DERA	Defense Environmental Restoration Account
DOD	Department of Defense
EA	EA Engineering, Science and Technology
ERA	Ecological Risk Assessment
EPA	United States Environmental Protection Agency
FFA	Federal Facility Agreement
FS	Feasibility Study
GC	Gas Chromatograph
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQ	Hazard Quotient
IAS	Initial Assessment Study
IR	Installation Restoration
MCL	Maximum Contaminant Level
NAS	Naval Air Station
NCBC	Naval Construction Battalion Center
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
OVA	Organic Vapor Analyzer
PCB	Polychlorinated Biphenyls
RBC	Risk-based Concentration
RfD	Reference Dose
RI	Remedial Investigation
RIDEM	Rhode Island Department of Environmental Management
RIEDC	Rhode Island Economic Development Corporation
RING	Rhode Island National Guard
RIPA	Rhode Island Port Authority
RME	Reasonable Maximum Exposure
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SF	Slope Factor
SMCL	Secondary Maximum Contaminant Level
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TRC	TRC Environmental Corporation
TRV	Toxicity Reference Value
TSS	Total Suspended Solids
UCLM	Upper Confidence Limit of the Mean

**FIGURES**

*Site 10 - Camp Fogarty Disposal Area*  
*Site 08 - DPDO Film Processing Disposal Area*  
NCBC - Davisville, Rhode Island



SITE 10 Camp Fogarty Disposal Area

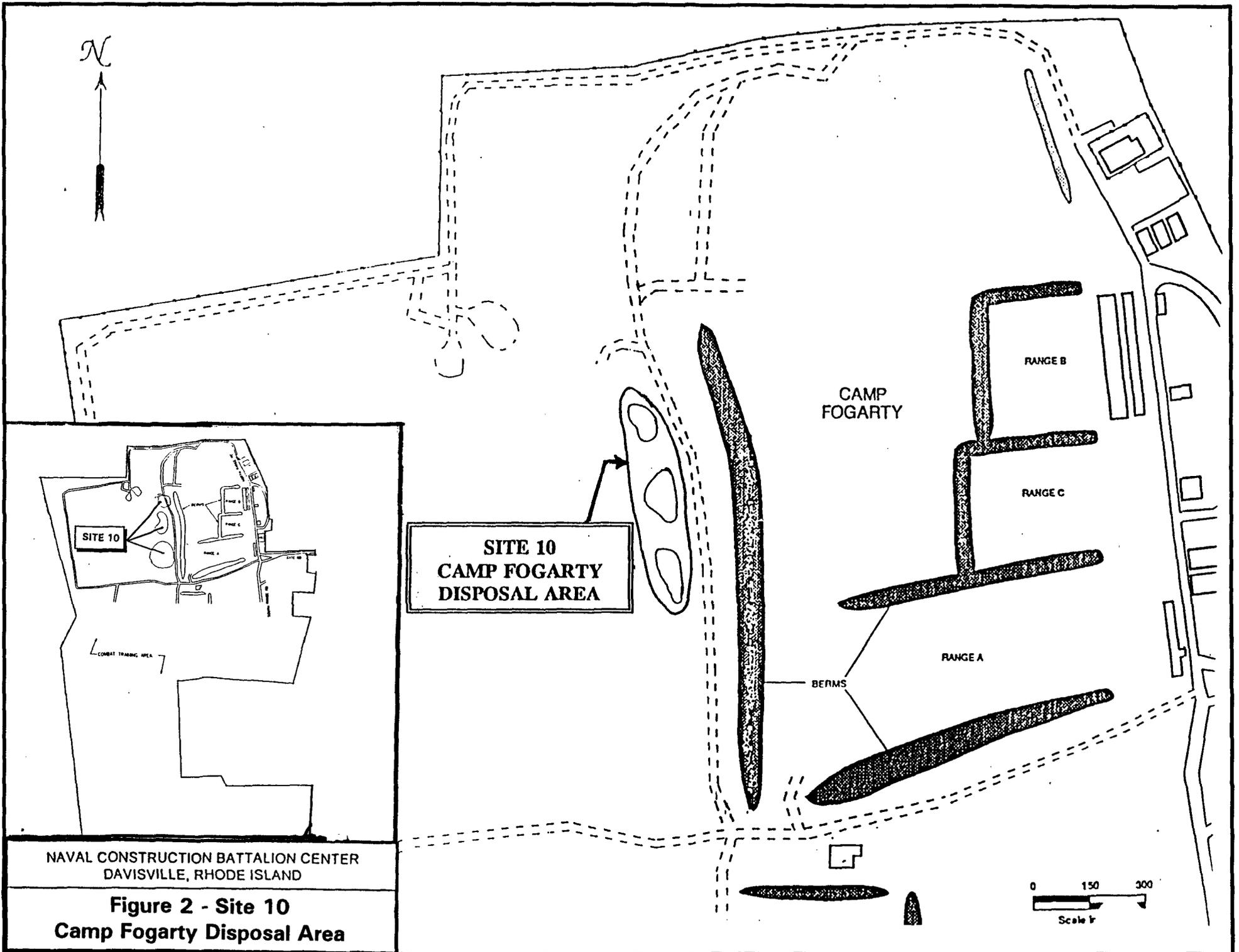
SITE 08 DPDO Film Processing Disposal Area

 **STONE & WEBSTER ENVIRONMENTAL  
TECHNOLOGY & SERVICES**

Naval Construction Battalion Center      Davisville, RI

**FIGURE 1 - SITE LOCUS MAP**

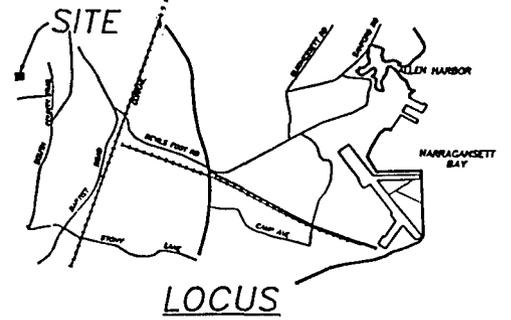
BASE MAP: U.S.G.S. EAST GREENWICH AND WICKFORD QUADRANGLE - RHODE ISLAND  
7.5 MINUTE SERIES (TOPOGRAPHIC) 1942, PHOTOREVISED 1970 & 1975.



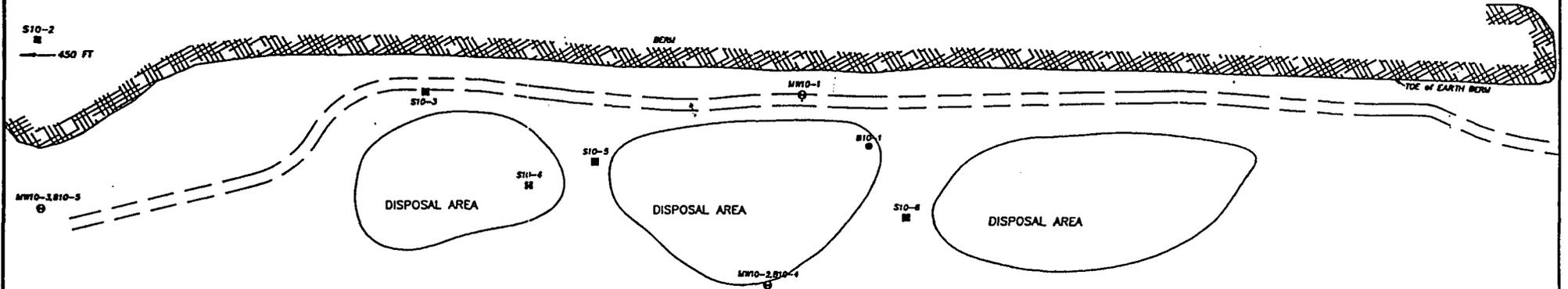
NAVAL CONSTRUCTION BATTALION CENTER  
DAVISVILLE, RHODE ISLAND

**Figure 2 - Site 10  
Camp Fogarty Disposal Area**

RHODE ISLAND STATE PLANE  
NAD 1983



CAMP FOGARTY FIRING RANGES

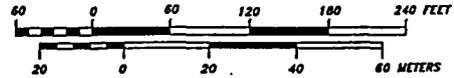


LEGEND:

- TEST BORING LOCATION
- ⊕ MONITORING WELL LOCATION
- SURFACE SOIL SAMPLE LOCATION

NOTES:

1. HORIZONTAL DATUM: RHODE ISLAND GRID, NAD 1927, 1983 ADJUSTMENT.
2. VERTICAL DATUM: NGVD 1929.



STONE & WEBSTER  
ENVIRONMENTAL TECHNOLOGY & SERVICES  
BOSTON, MA

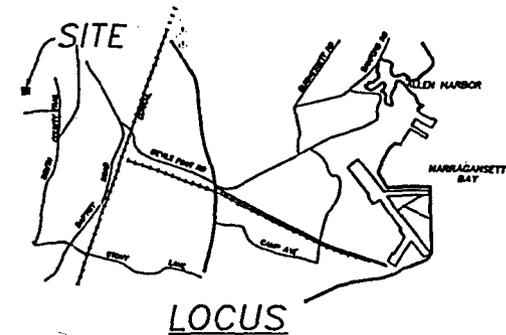
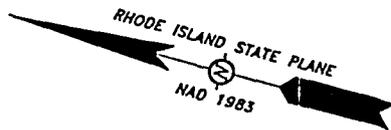
NAVAL CONSTRUCTION  
BATTALION CENTER

DAVSVILLE  
RHODE ISLAND

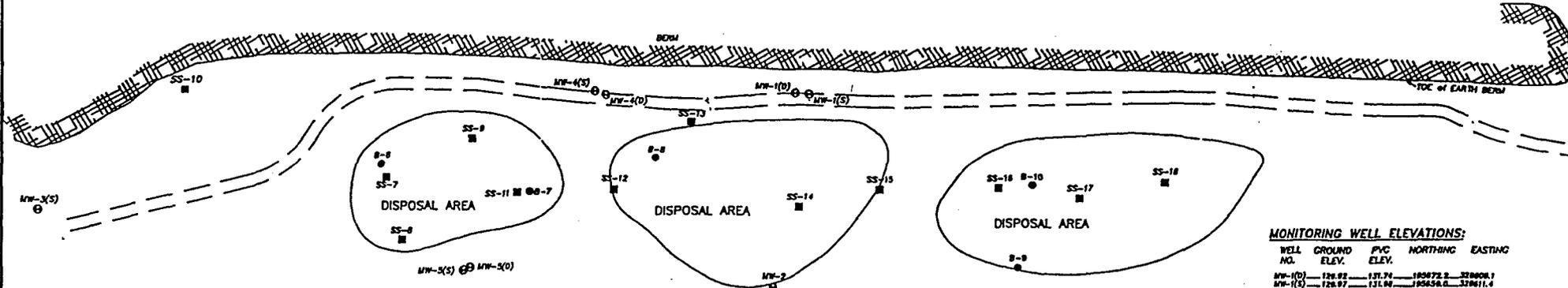
**FIGURE 3**  
Site 10 - Camp Fogarty Disposal Area  
Phase I Sampling Locations

Source of plan:  
Detailed Analysis of Alternatives, TRC, 1994.

10/10/94



CAMP FOGARTY FIRING RANGES



**MONITORING WELL ELEVATIONS:**

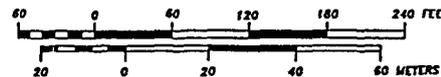
WELL NO.	GROUND ELEV.	PVC ELEV.	NORTHING	EASTING
MW-1(D)	126.82	131.74	185672.3	328608.1
MW-1(S)	126.97	131.90	185650.0	328611.4
MW-2(S)	124.36	127.16	185640.6	328412.6
MW-3(S)	127.32	136.36	185636.1	328307.7
MW-4(S)	122.34	124.82	185631.4	328508.1
MW-4(D)	122.25	122.07	185632.6	328508.3
MW-5(D)	124.83	137.31	185632.6	328354.3
MW-5(S)	124.77	136.07	185611.8	328350.1

**LEGEND:**

- TEST BORING LOCATION
- MONITORING WELL LOCATION
- SURFACE SOIL SAMPLE LOCATION
- (S) SHALLOW WELL
- (D) DEEP WELL

**NOTES:**

1. HORIZONTAL DATUM: RHODE ISLAND GRID, NAD 1927, 1969 ADJUSTMENT.
2. VERTICAL DATUM: NGVD 1929.



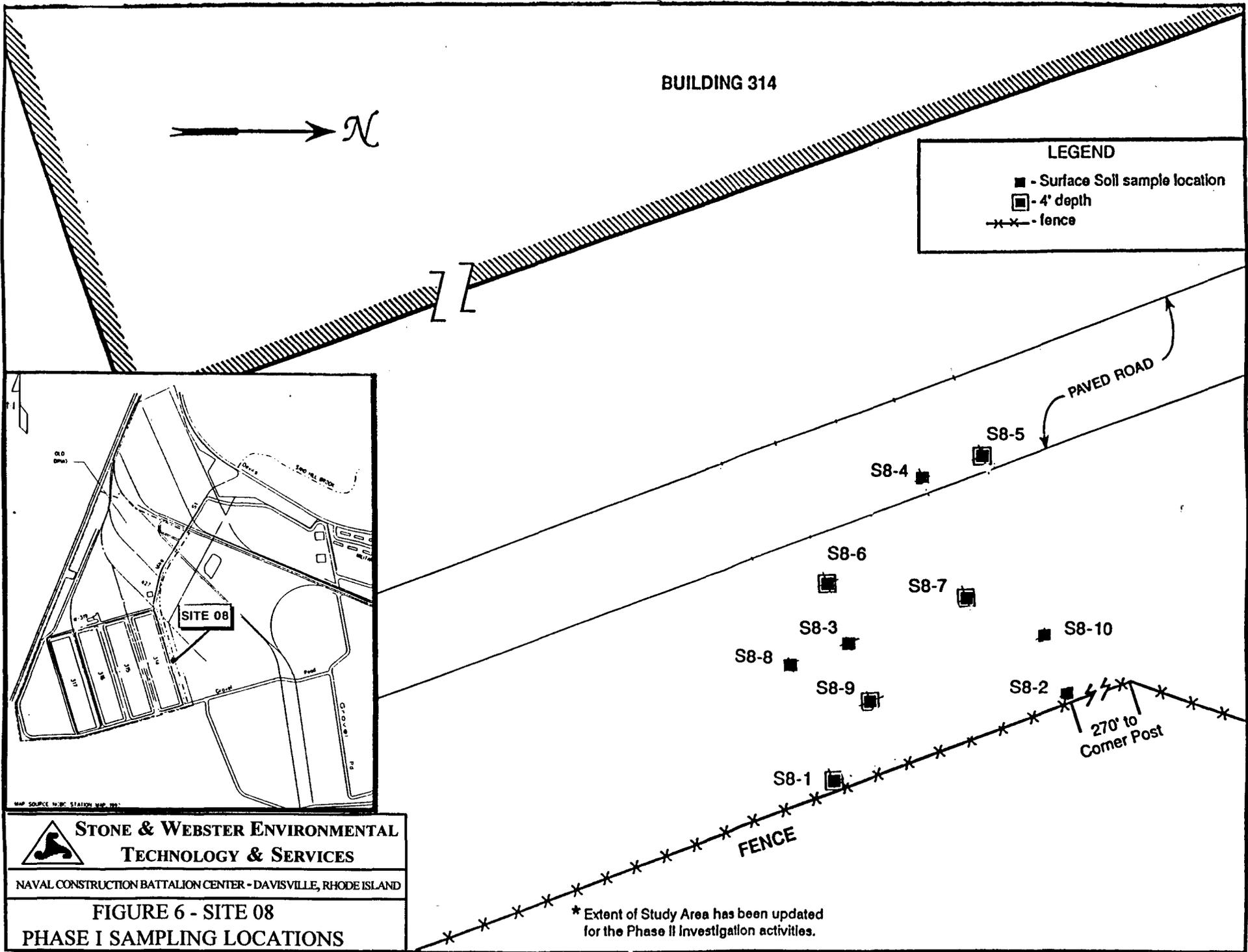
Source of plan:  
Detailed Analysis of Alternatives, TRC, 1994.

**STONE & WEBSTER**  
ENVIRONMENTAL TECHNOLOGY & SERVICES  
BOSTON, MA

NAVAL CONSTRUCTION BATTALION CENTER      DAVISVILLE RHODE ISLAND

**FIGURE 4**  
Site 10 - Camp Fogarty Disposal Area  
Phase II Sampling Locations

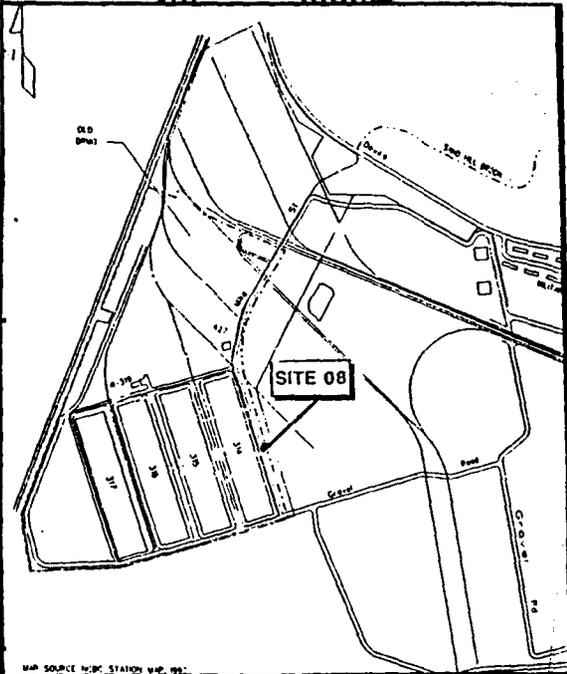
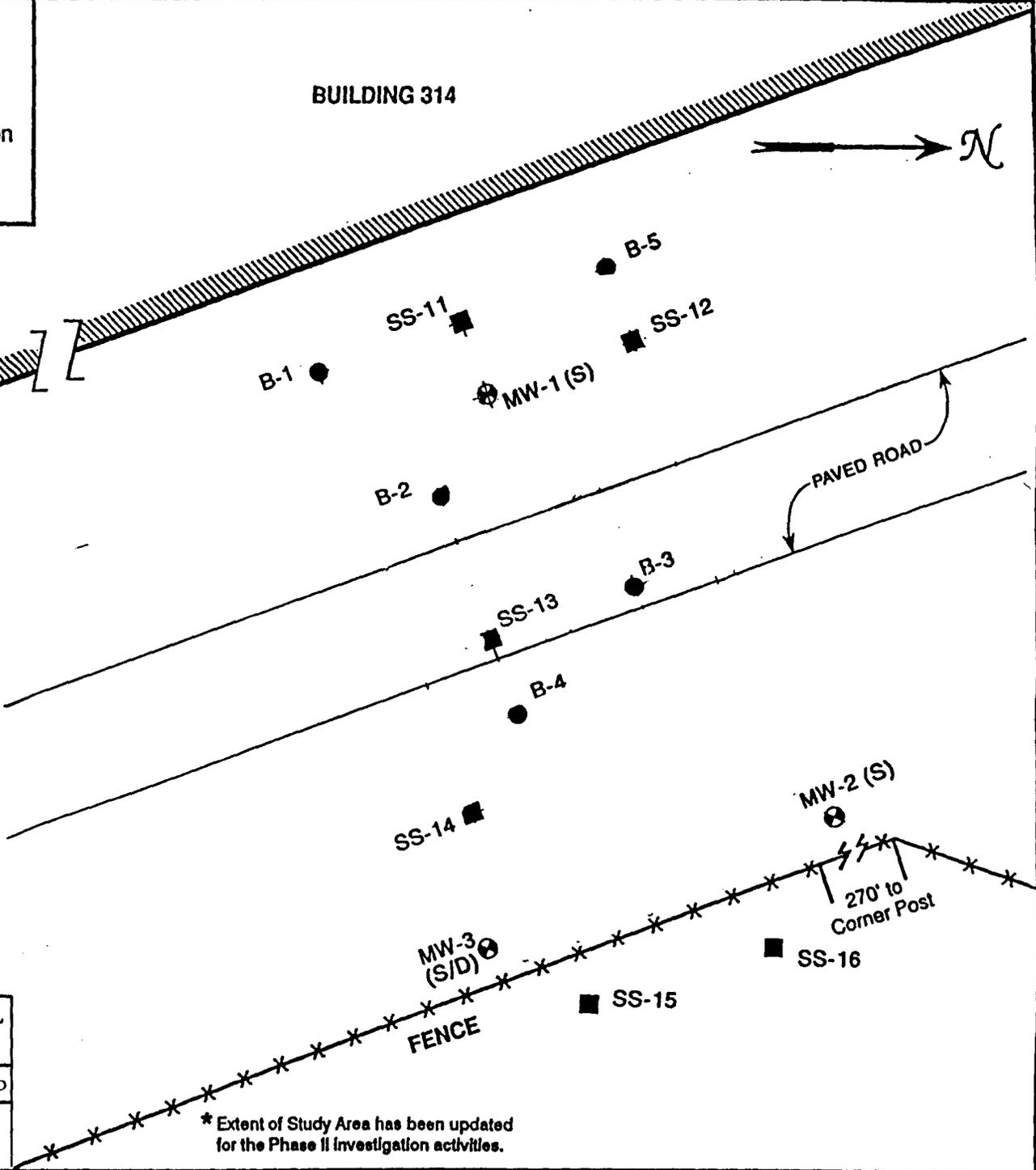
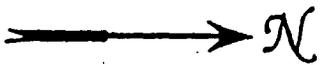




**LEGEND**

- ⊗ Monitoring Well Location
- Test Boring Location
- Surface Soil Sample Location
- (S) Shallow Well
- (D) Deep Well

BUILDING 314



**STONE & WEBSTER ENVIRONMENTAL  
TECHNOLOGY & SERVICES**  
NAVAL CONSTRUCTION BATTALION CENTER - DAVISVILLE, RHODE ISLAND

**FIGURE 7 - SITE 08  
PHASE II SAMPLING LOCATIONS**

\* Extent of Study Area has been updated for the Phase II investigation activities.

**APPENDIX A**  
**RISK ASSESSMENT SUMMARY**  
*Site 10 - Camp Fogarty Disposal Area*  
NCBC - Davisville, Rhode Island

Note: No COCs for Site 08.

**TABLE A-1**  
**SUMMARY STATISTICS FOR CONSTITUENTS OF CONCERN IN SURFACE SOILS,**  
**NCBC DAVISVILLE SITE 10**

Constituent of Concern	Frequency Detected	Range of Nondetects (mg/kg)	Range of Detects (mg/kg)	Mean (mg/kg)	95 UCLM (mg/kg)
<b>INORGANICS</b>					
Antimony	6 / 28	2 - 9.2	2.1 - 35.8	3.6	4.2
Arsenic	20 / 28	0.39 - 0.64	0.25 - 3.6	1.1	1.9
Beryllium	28 / 28	--	0.41 - 2.9	1.1	1.3
Iron	28 / 28	--	5,090 - 23,100	11,000	13,000
Lead	28 / 28	--	8.1 - 655	100	180
<b>SEMIVOLATILES</b>					
Benzo(a)anthracene	9 / 28	0.34 - 0.57	0.042 - 3.4	0.43	0.55
Benzo(a)pyrene	9 / 28	0.34 - 0.45	0.062 - 2.6	0.39	0.47
Benzo(b)fluoranthene	10 / 28	0.34 - 0.45	0.083 - 5.1	0.52	0.62
Dibenzo(a,h)anthracene	2 / 28	0.34 - 0.57	0.04 - 0.43	0.21	0.23
Ideno(1,2,3-cd)pyrene	6 / 28	0.34 - 0.57	0.063 - 0.94	0.25	0.29

Source: Final Technical Memorandum Human Health Risk Assessment (HHRA) For IR Program Sites 06, 10, and 11, Naval Construction Battalion Center, Davisville, Rhode Island, EA Engineering, Science, and Technology, November 1996.

**TABLE A-2  
SUMMARY OF ESTIMATED CANCER RISKS AND HAZARD INDICES FOR HEALTH EFFECTS OTHER THAN  
CANCER FOR ALL RECEPTOR POPULATIONS, NCBC DAVISVILLE SITE 10**

Exposure Pathway	Future Construction Workers		Future Commercial Workers		Future Adult Residents		Future Children Residents	
	AE	RME	AE	RME	AE	RME	AE	RME
<b>CANCER RISKS</b>								
Incidental ingestion of soil	$5 \times 10^{-8}$	$3 \times 10^{-7}$	$8 \times 10^{-7}$	$3 \times 10^{-6}$	$4 \times 10^{-7}$	$4 \times 10^{-6}$	$1 \times 10^{-6}$	$7 \times 10^{-6}$
Dermal contact with soil	--	--	--	--	--	--	--	--
Inhalation of fugitive dusts	$6 \times 10^{-11}$	$2 \times 10^{-10}$	NA	NA	NA	NA	NA	NA
<b>TOTAL RISK</b>	$5 \times 10^{-8}$	$3 \times 10^{-7}$	$8 \times 10^{-7}$	$3 \times 10^{-6}$	$4 \times 10^{-7}$	$4 \times 10^{-6}$	$1 \times 10^{-6}$	$7 \times 10^{-6}$
<b>HAZARD INDICES FOR HEALTH EFFECTS OTHER THAN CANCER</b>								
Incidental ingestion of soil	0.004	0.03	0.005	0.01	0.005	0.01	0.05	0.09
Dermal contact with soil	--	--	--	--	--	--	--	--
Inhalation of fugitive dusts	0.000002	0.000008	NA	NA	NA	NA	NA	NA
<b>TOTAL HI</b>	0.004	0.03	0.005	0.01	0.005	0.01	0.05	0.09

Source: Final Technical Memorandum Human Health Risk Assessment (HHRA) For IR Program Sites 06, 10, and 11, Naval Construction Battalion Center, Davisville, Rhode Island, EA Engineering, Science, and Technology, November 1996.

**APPENDIX B**  
**RIDEM LETTER OF CONCURRENCE**  
*Site 10 - Camp Fogarty Disposal Area*  
*Site 08 - DPDO Film Processing Disposal Area*  
NCBC - Davisville, Rhode Island

*Mary Anderson*



RHODE ISLAND  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-831-5508

22 June 1998

Ms. Patricia Meaney  
Director, Office of Site Remediation and Restoration  
USEPA - Region 1  
JFK Federal Building - HIO  
Boston, MA 02203

RE: Record of Decision for:  
Site 10 - Camp Fogarty Disposal Area - Soil and Groundwater Operable Unit and  
Site 08 - DPDO Film Processing Disposal Area - Goundwater Operable Unit  
Former Naval Construction Battalion Center (NCBC), Davisville, RI

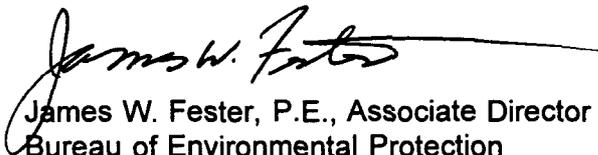
Dear Ms. Meaney;

On 23 March 1992 the State of Rhode Island entered into a Federal Facilities Agreement (FFA) with the Department of the Navy and the Environmental Protection Agency. One of the primary goals of the FFA is to insure that the environmental impacts associated with past activities at the Former Naval Construction Battalion Center (NCBC) located in Davisville, Rhode Island are thoroughly investigated and that appropriate actions are taken to protect human health and the environment.

In accordance with the FFA, The Department has reviewed the Record of Decision for the above two referenced sites, dated June 1998. Our review of this document, combined with our knowledge of the site gathered through our historical involvement in the investigatory phases, has determined that the selected remedy of no further action achieves our goal of protection of human health and the environment.

RIDEM would like to commend the Navy for their diligence in investigating these sites and working with the local community and affected stakeholders by considering their concerns. RIDEM therefore concurs with this Record Of Decision and looks forward to continuing working with the Navy and EPA on the remaining concerns at this base.

Sincerely,

  
James W. Fester, P.E., Associate Director  
Bureau of Environmental Protection  
Department of Environmental Management

**cc: Andrew McLeod, Director, RIDEM  
John DeVillars, Regional Administrator, USEPA  
Captain W.P. Fogarty, CEC, USN  
Edward Szymanski, DEM Associate Director  
Richard Kerbel, Town Administrator, North Kingstown  
Terrence Gray, DEM, Office of Waste Management  
Claude Cote, Esquire, DEM, Office of Legal Services**

**APPENDIX C**  
**ADMINISTRATIVE RECORD INDEX AND GUIDANCE DOCUMENTS**  
*Site 10 - Camp Fogarty Disposal Area*  
*Site 08 - DPDO Film Processing Disposal Area*  
NCBC - Davisville, Rhode Island

**(UNDER SEPARATE COVER)**

**APPENDIX D**  
**TRANSCRIPT OF PUBLIC HEARING**  
*Site 10 - Camp Fogarty Disposal Area*  
*Site 08 - DPDO Film Processing Disposal Area*  
NCBC - Davisville, Rhode Island

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

. . . . .  
PROCEEDINGS AT HEARING :  
: :  
IN RE: PROPOSED REMEDIAL :  
ACTION PLAN FOR SITES 8 & 10 :  
. . . . .

DATE: May 14, 1998  
TIME: 7:00 p.m.  
PLACE: NCBC Davisville  
1330 Davisville Road  
North Kingstown, RI

PRESENT:

- PHILIP S. OTIS, NAVAL REMEDIAL PROJECT MANAGER
- WALTER DAVIS, NAVAL ENVIRONMENTAL MANAGER
- CHRISTINE WILLIAMS, EPA REMEDIAL PROJECT MANAGER
- LINDA GARDINER, SENIOR ENGINEER, STONE & WEBSTER
- MONICA BERUBE, ENGINEER, STONE & WEBSTER

ORIGINAL

ALLIED COURT REPORTERS, INC.  
115 PHENIX AVENUE  
CRANSTON, RI 02920  
(401) 946-5500

1 (COMMENCED AT 8:20 P.M.)

2 MR. OTIS: This will convene the  
3 public hearing portion of this evening's meeting  
4 which is intended to receive comments from the  
5 public on the Proposed Remedial Action Plan for  
6 Site 8, groundwater. That is a solvent disposal  
7 site of photographic chemicals. And Site 10,  
8 groundwater and soil, which was a debris disposal  
9 site at Camp Fogarty. Are there any members in  
10 the audience this evening that would like to make  
11 a comment that would be included in the Record Of  
12 Decision for this project?

13 (BRIEF PAUSE)

14 MR. OTIS: Let the record show that  
15 there were no comments offered by any of the  
16 members of the public in attendance. The hearing  
17 is hereby closed.

18 (CONCLUDED AT 8:22 P.M.)

19 \* \* \* \* \*

20  
21  
22  
23  
24

C E R T I F I C A T E

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24

I, Claudia J. Read, Notary Public, do hereby certify that I reported in shorthand the foregoing proceedings, and that the foregoing transcript contains a true, accurate, and complete record of the proceedings at the above-entitled hearing.

IN WITNESS WHEREOF, I have hereunto set my hand this 17th day of May, 1998.

*Claudia J. Read Notary Public*

CLAUDIA J. READ, NOTARY PUBLIC/CERTIFIED COURT REPORTER